Docket 2021 90-E Duke Energy Progress
South Carolina
CONFIDENTIAL AND PROPRIETARY

DUKE ENERGY PROGRESS, LLC

Energy Credits
Variable Rate
Distribution
Based on 2022 -2023 Costs
Cents per KWH

	DEP_Summer_ Prem-Peak	DEP_Summer_ PM-Peak	DEP_Summer_ OffPeak	DEP_Winter_ Prem-Peak	DEP_Winter_ AM-Peak	DEP_Winter_ PM-Peak	DEP_Winter_ OffPeak	DEP_Shoulder_ Peak	DEP_Shoulder_ OffPeak
	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.11	2.77	2.55	4.91	3.57	3.46	2.90	2.90	2.50
2. Working Capital Factor (Note 2)	1.0144	1.0144	1.0144	1.0144	$1.01440	1.0144	1.0144	1.0144	1.0144
3. Marginal Loss Factor (Note 3)	1.0314	1.0301	1.0174	1.0302	$1.02177	1.0235	1.0165	1.0152	1.0116
4. SC Generating Excise Tax	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5. Energy Credits (L1*L2*L3)+L4	3.30	2.94	2.68	5.19	3.75	3.65	3.05	3.03	2.62

Energy Credits
5 Year Fixed Rates
Distribution
Based on 2022-2026 Costs
Cents per KWH

	DEP_Summer_ Prem-Peak	DEP_Summer_ PM-Peak	DEP_Summer_ OffPeak	DEP_Winter_ Prem-Peak	DEP_Winter_ AM-Peak	DEP_Winter_ PM-Peak	DEP_Winter_ OffPeak	DEP_Shoulder_ Peak	DEP_Shoulder_ OffPeak
	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
1. Avoided Energy Cost (Note 1)	2.97	2.79	2.62	4.56	3.44	3.58	3.04	2.91	2.46
2. Working Capital Factor (Note 2)	1.0144	1.0144	1.0144	1.0144	$1.01440	1.0144	1.0144	1.0144	1.0144
3. Marginal Loss Factor (Note 3)	1.0314	1.0301	1.0174	1.0302	$1.02177	1.0235	1.0165	1.0152	1.0116
4. SC Generating Excise Tax	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5. Energy Credits (L1*L2*L3)+L4	3.16	2.96	2.75	4.82	3.61	3.76	3.18	3.04	2.58

Energy Credits
10 Year Fixed Rates
Distribution
Based on 2022-2031 Costs
Cents per KWH

	DEP_Summer_ Prem-Peak	DEP_Summer_ PM-Peak	DEP_Summer_ OffPeak	DEP_Winter_ Prem-Peak	DEP_Winter_ AM-Peak	DEP_Winter_ PM-Peak	DEP_Winter_ OffPeak	DEP_Shoulder_ Peak	DEP_Shoulder_ OffPeak
	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.03	2.83	2.69	4.85	3.74	4.07	3.34	2.90	2.50
2. Working Capital Factor (Note 2)	1.0144	1.0144	1.0144	1.0144	$1.01440	1.0144	1.0144	1.0144	1.0144
3. Marginal Loss Factor (Note 3)	1.0314	1.0301	1.0174	1.0302	$1.02177	1.0235	1.0165	1.0152	1.0116
4. SC Generating Excise Tax	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5. Energy Credits (L1*L2*L3)+L4	3.22	3.00	2.83	5.12	3.92	4.27	3.49	3.04	2.61

Notes
1. From Page 3
2. From Page 9
3. Marginal Loss Factor = 1 / (1 - %)

Based on marginal % losses of: Applies to:	**Distribution level Interconnections** Transmission Losses (Incl Step Up and Step down Transformer)	**Transmission level Interconnections** Step Up Transformer Losses
DEP_Summer_ Prem-Peak	3.042%	0.139%
DEP_Summer_ PM-Peak	2.925%	0.134%
DEP_Summer_ OffPeak	1.711%	0.078%
DEP_Winter_ Prem-Peak	2.935%	0.134%
DEP_Winter_ AM-Peak	2.131%	0.097%
DEP_Winter_ PM-Peak	2.301%	0.105%
DEP_Winter_ OffPeak	1.622%	0.074%
DEP_Shoulder_ Peak	1.502%	0.069%
DEP_Shoulder_OffPeak	1.146%	0.052%

DUKE ENERGY PROGRESS, LLC

Energy Credits
Variable Rate
Transmission
Based on 2022 -2023 Costs
Cents per KWH

	DEP_Summer_ Prem-Peak	DEP_Summer_ PM-Peak	DEP_Summer_ OffPeak	DEP_Winter_ Prem-Peak	DEP_Winter_ AM-Peak	DEP_Winter_ PM-Peak	DEP_Winter_ OffPeak	DEP_Shoulder_ Peak	DEP_Shoulder_ OffPeak
	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.11	2.77	2.55	4.91	3.57	3.46	2.90	2.90	2.50
2. Working Capital Factor (Note 2)	1.0144	1.0144	1.0144	1.0144	$1.01440	1.0144	1.0144	1.0144	1.0144
3. Marginal Loss Factor (Note 3)	1.0014	1.0013	1.0008	1.0013	$1.00097	1.0011	1.0007	1.0007	1.0005
4. SC Generating Excise Tax	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5. Energy Credits (L1*L2*L3)+L4	3.21	2.86	2.64	5.04	3.68	3.57	3.00	2.99	2.59

Energy Credits
5 Year Fixed Rates
Transmission
Based on 2022-2026 Costs
Cents per KWH

	DEP_Summer_ Prem-Peak	DEP_Summer_ PM-Peak	DEP_Summer_ OffPeak	DEP_Winter_ Prem-Peak	DEP_Winter_ AM-Peak	DEP_Winter_ PM-Peak	DEP_Winter_ OffPeak	DEP_Shoulder_ Peak	DEP_Shoulder_ OffPeak
	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
1. Avoided Energy Cost (Note 1)	2.97	2.79	2.62	4.56	3.44	3.58	3.04	2.91	2.46
2. Working Capital Factor (Note 2)	1.0144	1.0144	1.0144	1.0144	$1.01440	1.0144	1.0144	1.0144	1.0144
3. Marginal Loss Factor (Note 3)	1.0014	1.0013	1.0008	1.0013	$1.00097	1.0011	1.0007	1.0007	1.0005
4. SC Generating Excise Tax	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5. Energy Credits (L1*L2*L3)+L4	3.07	2.88	2.71	4.68	3.54	3.68	3.13	3.00	2.55

Energy Credits
10 Year Fixed Rates
Transmission
Based on 2022-2031 Costs
Cents per KWH

	DEP_Summer_ Prem-Peak	DEP_Summer_ PM-Peak	DEP_Summer_ OffPeak	DEP_Winter_ Prem-Peak	DEP_Winter_ AM-Peak	DEP_Winter_ PM-Peak	DEP_Winter_ OffPeak	DEP_Shoulder_ Peak	DEP_Shoulder_ OffPeak
	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.03	2.83	2.69	4.85	3.74	4.07	3.34	2.90	2.50
2. Working Capital Factor (Note 2)	1.0144	1.0144	1.0144	1.0144	$1.01440	1.0144	1.0144	1.0144	1.0144
3. Marginal Loss Factor (Note 3)	1.0014	1.0013	1.0008	1.0013	$1.00097	1.0011	1.0007	1.0007	1.0005
4. SC Generating Excise Tax	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5. Energy Credits (L1*L2*L3)+L4	3.12	2.92	2.78	4.98	3.84	4.18	3.44	3.00	2.58

Notes
1. From Page 3
2. From Page 9
3. Marginal Loss Factor = 1 / (1 - % loss/100)

Based on marginal % losses of: Applies to:	**Distribution level Interconnections** Transmission Losses (Incl Step Up and Step down Transformer)	**Transmission level Interconnections** Step Up Transformer Losses
DEP_Summer_ Prem-Peak	3.042%	0.139%
DEP_Summer_ PM-Peak	2.925%	0.134%
DEP_Summer_ OffPeak	1.711%	0.078%
DEP_Winter_ Prem-Peak	2.935%	0.134%
DEP_Winter_ AM-Peak	2.131%	0.097%
DEP_Winter_ PM-Peak	2.301%	0.105%
DEP_Winter_ OffPeak	1.622%	0.074%
DEP_Shoulder_ Peak	1.502%	0.069%
DEP_Shoulder_OffPeak	1.146%	0.052%

DUKE ENERGY PROGRESS, LLC

Avoided Energy Costs

Year	DEP_Summer_ Prem-Peak (Cents/KWH)	DEP_Summer_ PM-Peak (Cents/KWH)	DEP_Summer_ OffPeak (Cents/KWH)	DEP_Winter_ Prem-Peak (Cents/KWH)	DEP_Winter_ AM-Peak (Cents/KWH)	DEP_Winter_ PM-Peak (Cents/KWH)	DEP_Winter_ OffPeak (Cents/KWH)	DEP_Shoulder_ Peak (Cents/KWH)	DEP_Shoulder_ OffPeak (Cents/KWH)
2022	[redacted]								
2023									
2024									
2025									
2026									
2027									
2028									
2029									
2030									
2031									
2 Year Present Value	5.67	5.05	4.64	8.96	6.52	6.32	5.30	5.28	4.57
Levelized Value	3.11	2.77	2.55	4.91	3.57	3.46	2.90	2.90	2.50
5 Year Present Value	12.38	11.62	10.93	19.01	14.33	14.91	12.67	12.12	10.27
Levelized Value	2.97	2.79	2.62	4.56	3.44	3.58	3.04	2.91	2.46
10 Year Present Value	21.88	20.43	19.46	35.11	27.02	29.41	24.14	20.99	18.06
Levelized Value	3.03	2.83	2.69	4.85	3.74	4.07	3.34	2.90	2.50

Notes:
1. Present values and levelized values are derived using a discount rate of 6.37%
2. Energy costs include emission costs
3. Energy Hour definition:

Energy	AM			PM	
DEP SC	Peak	Premium		Peak	Premium
Summer weekday Jun-Sep				14-16 and 21	17-20
Winter weekday Dec-Feb	5-6, 10-11	7-9		19-22	
Shoulder weekday Remaining	6-10			18-23	

Remaining hours are off peak

DUKE ENERGY PROGRESS, LLC

Capacity Credits
Variable Rate
Based on 2022 -2023 Costs

	Distribution (Note 6)	Transmission (Note 6)
1. Avoided Capacity Cost Present Value of 2022-2023 (Note 1)	$0	$0
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	$0	$0
3. Annual Avoided Capacity Cost L2 x 12 months	$0	$0
SEASONAL CREDITS (Note 3)	Winter Months	Winter Months
4. Seasonal Allocation (Note 4)	100.0%	100.0%
5. Seasonal Allocation of annual capacity cost L3 x L4	$0	$0
6. Rating -MW (Note 5)	237	237
7. Seasonal Capacity Credit ($/KW) L5/L6	$0.00	$0.00
8. Seasonal Peak Hours	605	605
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	0.00	0.00

Notes

1. From Page 7

2. Ordinary annuity factor where i = 1.0637 ^(1/12)-1)*100 = 0.5160%
and n = 24 months

3. Capacity Hour Definition:

Capacity	Months	Hour Ending
DEP SC Winter Capacity	Dec-Mar	5am - 9 am

4. Based on LOLE

5. Rating for new combustion turbine

6. $ in 000s except as noted

DUKE ENERGY PROGRESS, LLC

Capacity Credits
5 Year Fixed Long-Term Rate
Based on 2022-2026 Costs

	Distribution (Note 6)	Transmission (Note 6)
1. Avoided Capacity Cost Present Value of 2022-2026 (Note 1)	$46,630	$45,691
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	$906	$887
3. Annual Avoided Capacity Cost L2 x 12 months	$10,868	$10,649
SEASONAL CREDITS (Note 3)	Winter Months	Winter Months
4. Seasonal Allocation (Note 4)	100.0%	100.0%
5. Seasonal Allocation of annual capacity cost L3 x L4	$10,868	$10,649
6. Rating -MW (Note 5)	237	237
7. Seasonal Capacity Credit ($/KW) L5/L6	$45.86	$44.93
8. Seasonal Peak Hours	605	605
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	7.58	7.43

Notes

1. From Page 7

2. Ordinary annuity factor where i = 1.0637 ^(1/12)-1)*100 = 0.5160%
and n = 60 months

3. Capacity Hour Definition:

Capacity	Months	Hour Ending
DEP SC Winter Capacity	Dec-Mar	5am - 9 am

4. Based on LOLE

5. Rating for new combustion turbine

6. $ in 000s except as noted

DUKE ENERGY PROGRESS, LLC

Capacity Credits
10 Year Fixed Long-Term Rate
Based on 2022-2031 Costs

	Distribution (Note 6)	Transmission (Note 6)
1. Avoided Capacity Cost Present Value of 2022-2031 (Note 1)	$109,793	$107,583
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	$1,230	$1,205
3. Annual Avoided Capacity Cost L2 x 12 months	$14,755	$14,458
SEASONAL CREDITS (Note 3)	Winter Months	Winter Months
4. Seasonal Allocation (Note 4)	100.0%	100.0%
5. Seasonal Allocation of annual capacity cost L3 x L4	$14,755	$14,458
6. Rating -MW (Note 5)	237	237
7. Seasonal Capacity Credit ($/KW) L5/L6	$62.26	$61.00
8. Seasonal Peak Hours	605	605
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	10.29	10.08

Notes

1. From Page 7

2. Ordinary annuity factor where i = 1.0637 ^(1/12)-1)*100 = 0.5160%
and n = 120 months

3. Capacity Hour Definition:

	Capacity	Months	Hour Ending
DEP SC	Winter Capacity	Dec-Mar	5am - 9 am

4. Based on LOLE

5. Rating for new combustion turbine

6. $ in 000s except as noted

DUKE ENERGY PROGRESS, LLC

Annual Avoided Capacity Costs

	Distribution				Transmission			
	CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)	
Year	(2021 $000s)	(Nominal $000s)	(2021 $000s)	(Nominal $000s)	(2021 $000s)	(Nominal $000s)	(2021 $000s)	(Nominal $000s)
2022	$0	$0	$0	$0	$0	$0	$0	$0
2023	$0	$0	$0	$0	$0	$0	$0	$0
2024	[redacted]							
2025								
2026								
2027								
2028								
2029								
2030								
2031								

	Distribution			Transmission		
	Capacity (CT)	Capacity (FOM)	Capacity Cost	Capacity (CT)	Capacity (FOM)	Capacity Cost
2 Year Present Value (Note 2)	$0	$0	$0	$0	$0	$0
5 Year Present Value (Note 2)	$44,095	$2,535	$46,630	$43,208	$2,484	$45,691
10 Year Present Value (Note 2)	$103,613	$6,181	$109,793	$101,527	$6,056	$107,583

Notes

1. Annual Capacity Cost (Nominal $) = Annual Capacity Cost ('21 $) escalated at an annual rate of
   - Annual CT cost portion of Capacity Cost from Page 6 escalated at an annual rate of 0.86%
   - Annual FOM portion of Capacity Cost from Page 6 escalated at an annual rate of 2.50%
   - Annual escalation starts in 2022
2. Present values are derived using a discount rate of 6.37%
3. Capacity value is included starting with the first year of capacity need

DUKE ENERGY PROGRESS, LLC

Capacity Cost for Determination
of Capacity Credits
Other Generation
(2021 $000s)

	Distribution		Transmission	
	CT Cost	FOM (6)	CT Cost	FOM (6)
1. Installed Combustion Turbine Cost (Note 1)	[redacted]			
2. Combustion Turbine Fixed Charge Rate (Note 2)	9.88%		9.88%	
3. Annual Combustion Turbine Carrying Cost (L1*L2)	[redacted]			
4. General Plant Factor (Note 4)	2.11%		2.11%	
5. Adjusted Annual Combustion Turbine Carrying Cost (L3 + (L3*L	[redacted]			
6. Combustion Turbine Fixed O&M Expenses		[redacted]		
7. Working Capital Factor (Note 3)		1.0498	0.0000	1.0498
8. Subtotal (L5+(L6*L7))	[redacted]			
9. Performance Adjustment Factor	1.08	1.08	1.08	1.08
10. Marginal Loss Factor (Note 6)	1.0215	1.0215	1.0010	1.0010
11. Annual Capacity Cost (L8*L9*L10)	[redacted]			

Notes

1. Cost for new combustion turbine based on EIA data

2. Real levelized carrying charge rates applicable to new combustion turbine installed cost

3. From Page 9

4. From Page 10

5. Distribution:
   Based on marginal % loss of:
   On Peak 2.107% Loss factor = (1/(1 - On Peak loss%))
   Transmission:
   Step-Up Transformer Loss: 0.096% Loss factor = (1/(1 - Step up loss%))

6. FOM split out to apply O&M escalation rate on page 7

DUKE ENERGY PROGRESS, LLC

Allowance For Working Capital
($ 000)

		2015	2016	2017	2018	2019	Source (Note 4)
1.	Materials & Supplies (Production)	$639,908	$677,587	$628,022	$233,460	$170,991	P 227, L7
2.	Fuel Stock	$312,175	$262,287	$242,761	$220,024	$247,793	P 227, L1
3.	Production O&M	$2,960,771	$2,691,453	$2,400,718	$2,676,688	$2,755,291	P 320-323, L80
4.	Burned Fuel Cost And PP (Note 1)	$1,950,809	$1,774,979	$1,787,420	$2,122,220	$1,848,268	pg 320-323, L5,25,45, 63, 76
5.	Nonfuel Production O&M (L3-L4)	$1,009,962	$916,474	$613,298	$554,468	$907,023	
6.	Nonfuel Related Allowance For Working Capital L1 x 8.29% (Note 2)	$53,030	$56,152	$52,045	$19,347	$14,170	
7.	Allowance For Working Capital As a % Of Nonfuel Production O&M L6/L5	5.25%	6.13%	8.49%	3.49%	1.56%	
8.	5 Year Average For Working Capital as a % of Nonfuel Production O&M						4.98%
9.	Fuel Related Allowance for Working Capital L2x 8.29% (Note 2)	$25,870	$21,736	$20,118	$18,234	$20,535	
10.	Allowance For Working Capital As a % Of Burned Fuel L9/L4	1.33%	1.22%	1.13%	0.86%	1.11%	
11.	5 Year Average For Working Capital as a % of Burned Fuel					1.13%	
12.	Weighted Average For Working Capital For Fuel and O&M (Note 3)						1.44%

Notes:

1. Steam Fuel + Nuclear Fuel + Other Fuel + Purchased Power
2. Pre-Tax Rate of Return on Capital
3. Weights Based on Average Breakdown of Avoided Cost Between Fuel and Variable O&M
   Fuel: 92%
   Variable O&M: 8%
   Weighted Average = (Average Line 8 * Variable O&M Weight) + (Average Line 11 * Fuel Weight)
4. Data From FERC Form 1, Annual Issues

DUKE ENERGY PROGRESS, LLC

General / Intangible Plant Loading Factor
($ 000)

Description	2015	2016	2017	2018	2019	Source (Note 2)
1. Electric Plant in Service (Note 1)	23,443,409	26,123,596	27,243,900	28,901,006	32,725,008	P 206-7, L 104-ARO
2. General Plant	658,514	626,322	668,008	641,694	695,951	P 206-7, L 90
3. Intangible Plant	386,719	408,346	498,613	527,370	628,365	P 204-5, L 5
4. Plant in Service Adj for Gen/ Int Plan	$22,398,176	$25,088,928	$26,077,279	$27,731,942	$31,400,692	
Functionalized Plant Balances						
5. Production Demand (Note 1)	14,484,302	16,719,992	17,221,495	18,022,454	20,912,899	P 206-7, L 46
6. Transmission	2,352,701	2,482,661	2,619,582	2,764,724	2,990,450	P 206-7, L 58
7. Distribution	5,561,173	5,886,275	6,236,202	6,944,764	7,497,343	P 206-7, L 75

Unit Cost Functionalization	General	Intangible
Production Demand	18%	51%

Unit Cost Analysis for 2019 COS

Gen / Int Plant Adder (Note 3)	2015	2016	2017	2018	2019	Average
Production Demand	2.19%	1.93%	2.18%	2.14%	2.14%	2.11%

Notes
1. Values are net of ARO-related balances FF1 pg 206-7 (Lines 15,24,34,44,57,74,98)
2. Data From FERC Form 1, Annual Issues
3. Formula:

(General Plant x General Plant Unit Cost Functionalization %) / Functionalized Plant Balance + (Intangible Plant x Intangible Plant Unit Cost Functionalization %) /(Functionalized Plant Balance)